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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,147	07/08/2003	David W. Abraham	YOR920010260US2	8233

7590 05/23/2005  
Dr. Daniel P. Morris, Esq.  
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EXAMINER

LE, THONG QUOC

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 05/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/615,147	<b>Applicant(s)</b> ABRAHAM ET AL.	
	<b>Examiner</b> Thong Q. Le	<b>Art Unit</b> 2827	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 21-49 and 51-60 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-49 and 51-60 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

### **DETAILED ACTION**

1. Amendment filed on 04/21/2005 has been entered.
2. Claims 21-49, 51-60 are presented for examination.

### ***Response to Arguments***

3. Applicant's arguments with respect to claims 1-60 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 40, 51-52 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: these dependent claims depend from the claims have been canceled.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

7. Claims 21-26, 30-36 are rejected under 35 U.S.C. 102(e) as being anticipated by Nickel et al. (U.S. Patent No. 6,603,678).

Regarding claims 21-26, 30-36, Nickel et al. disclose a method for writing (ABSTRACT) to a memory storage device comprising:

providing a storage cell comprising a changeable magnetic region (Column 1, lines 9-25); said changeable magnetic region comprising a material having a magnetization state that is responsive to a change in temperature thereof (Column 3, lines 5-30); and

heating an element (Column 1, lines 55-62) proximate to said storage cell for selectively changing the temperature of said changeable magnetic region of said storage cell (Column 3, lines 30-40), and wherein the storage cell comprises a magnetic tunnel junction (Column 1, lines 9-11), and wherein said changeable magnetic region is a reversible magnetic region having a magnetization state which can be reversed by applying thereto a selected magnetic field, and the reversible magnetic region comprising a material having a magnetization state that is responsive to a change in the temperature thereof (Column 1, lines 9-52), and wherein said storage cell further

Art Unit: 2827

comprises at least one fixed magnetic region having a magnetization state which does not reverse when said selected magnetic field is applied thereto (Column 1, lines 15-24), and wherein said heating said element is heated by passing an electric current therethrough (Column 1, lines 25-30), and further comprising providing an electrically conductive terminal capable of receiving the electric current passing through said heating element (Column 4, lines 58-65, Figures 5).

8. Regarding claims 48-49, 51-56, Nickel et al. disclose an information storage device (Column 6, lines 10, Figure 3, 110) comprising: an array of magnetic memory element (114, Column 2, lines 14); and a plurality of heating elements (Figure 4, 120b, Column 52-57) for the memory elements, the heating elements are included in the devices extending across the array (Column 6, lines 12-13), and the heating elements are conductors (Column 3, lines 31-40, Figure 1, 22), and wherein each heating elements includes conductors providing the heating elements, and wherein the heating elements raise the temperature of selected memory elements about 5 C° to 10 C° above a compensation temperature (Column 3, lines 26), and wherein the heating elements raise the temperature of selected memory elements (Column 4, lines 1-7), and further comprising first means for generating magnetic fields for switching selected memory elements; and second means for causing the heating elements to apply heat to the selected memory elements while the magnetic fields are being applied (Figure 5d, 132a, 132b, Column 5, lines 20-30), and comprising first means for generating magnetic fields for switching selected memory elements; and second means for causing

the heating elements to apply heat to the selected memory elements before the magnetic fields are being applied (Figure 5d, 132a, 132b, Column 5, lines 20-30).

Regarding claims 57-60, Nickel et al. disclose an information storage device (Figure 3) comprising: an array of magnetic memory elements (114) ; and means for performing thermally-assisted switching of selected memory elements in the array (Column 2, lines 12-17) said means comprises heating elements included in the devices extending across array (Column 6, lines 10-16), and wherein the junction is heated by pass a current through a conductor that is spaced apart from the junction (Column 2, lines 55-67), and wherein the first and second orthogonal fields are applied to the memory element (Column 2, lines 54-59), and wherein the heating element are spaced apart from the memory elements (Figure 4, 120b).

Regarding claims 29, 39, 41-49, the apparatus discussed above would perform the method claims 29, 39, 41-49.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 21-23, 27-28, 30-32, 37-38 are rejected under 35 U.S.C. 102(b) as being anticipated by Sun et al. (U.S. Patent No. 4,649,519).

Regarding claims 21-23, 27-28, 30-32, 37-38, Sun et al. disclose a method for writing (ABSTRACT) to a memory storage device comprising:

providing a storage cell comprising a changeable magnetic region (ABSTRACT);  
said changeable magnetic region comprising a material having a magnetization state that is responsive to a change in temperature thereof (Column 2, lines 25-45); and

Art Unit: 2827

heating an element (Column 2, lines 55-64) proximate to said storage cell for selectively changing the temperature of said changeable magnetic region of said storage cell (Column 3, lines 17), and wherein the storage cell comprises a magnetic tunnel junction (Column 2, lines 23-45), and wherein said changeable magnetic region is a reversible magnetic region having a magnetization state which can be reversed by applying thereto a selected magnetic field, and the reversible magnetic region comprising a material having a magnetization state that is responsive to a change in the temperature thereof (Column 2, lines 23-45), and wherein the material having a magnetization state that is responsive to a change in temperature thereof comprises a ferromagnetic material (Column 2, lines 27-30), and comprising maintaining the changeable magnetic region at a compensation temperature of the material to maintain stored data in the storage cell ((Figures 1, 2, 4).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thong Q. Le whose telephone number is 571-272-1783. The examiner can normally be reached on 8:00am-5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoai V. Ho can be reached on 571-272-1777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2827

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Thong Q. Le'.

Thong Q. Le  
Primary Examiner  
Art Unit 2827

**THONG LE**  
**PRIMARY EXAMINER**